"Burst Oscillation Probes of Neutron Stars and Nuclear Burning with LOFT"

X-ray brightness oscillations during thermonuclear X-ray bursts--burst oscillations--have provided a new probe of neutron star spins as well as of time dependent nuclear burning processes. The frequency drift and amplitude evolution of the oscillations observed during bursts can in principle place constraints on the physics of thermonuclear flame spreading and the dynamics of the burning atmosphere. I use simulations appropriate to LOFT to explore the precision with which the time dependence of the oscillation frequency can be inferred. This can test, for example, different models for the frequency drift, such as up-lift versus geostrophic drift. I also explore the precision with which asymptotic frequencies can be constrained in order to estimate the capability for LOFT to detect the Doppler shifts induced by orbital motion of the neutron star from a sample of bursts at different orbital phases.